

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
28 April 2005 (28.04.2005)

PCT

(10) International Publication Number  
**WO 2005/038778 A1**

(51) International Patent Classification<sup>7</sup>: **G10L 19/14**

(21) International Application Number:  
PCT/IB2004/051948

(22) International Filing Date: 1 October 2004 (01.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03103854.0 17 October 2003 (17.10.2003) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN DE KERKHOF, Leon, M.** [NL/NL]; c/o Prof.Holstlaan 6, NL-5656 AA Eindhoven (NL). **OOMEN, Arnoldus, W., J.** [NL/NL]; c/o Prof.Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agent: **GROENENDAAL, Antonius, W., M.**; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

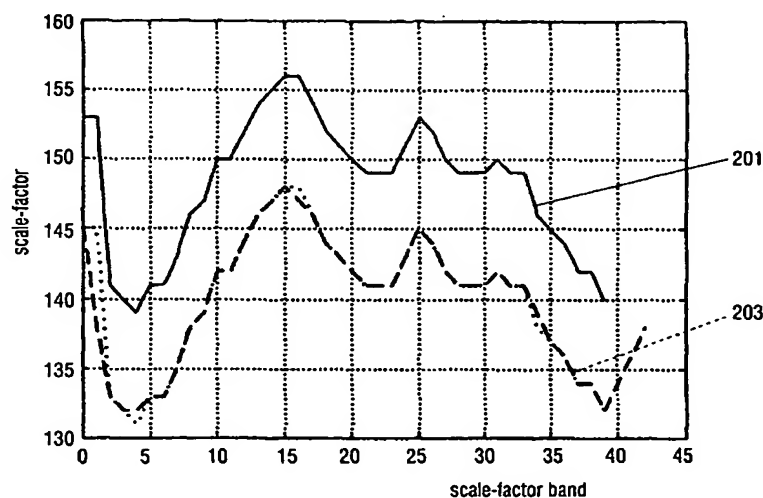
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: **SIGNAL ENCODING**



(57) Abstract: The invention relates to a signal encoding system (100). A pre-encoder (103) encodes a signal and generates a pre-encoded signal. In addition the pre-encoder (103) generates encoding assistance data which is stored in a signal storage (105) together with the pre-encoded signal. When the signal is retrieved from the signal storage (105), it is decoded in a decoder (111) and a watermark is inserted in the decoded signal to generate a watermarked signal. The watermarked signal is then re-encoded, possibly at a different encoding rate, in a re-encoder (117). The re-encoder (117) is operable to re-encode the watermarked signal in response to the encoding assistance data. Thus, encoding assistance data may be generated at encoding prior to storage and the encoding assistance data may be used to facilitate re-encoding of a watermarked signal when retrieved. The invention is particular advantageous for applications wherein pre-encoding is performed once whereas re-encoding is frequently performed, such as for example a client-server music download application.

WO 2005/038778 A1